

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of optical images, the method comprising:

measuring a thickness of the insulating layer;

collecting an optical image of the insulating layer corresponding to a location of the measured thickness data, and transforming the optical image into optical image analog data or optical image digital data;

creating a library by matching the measured thickness data and the optical image data collected on the same location on the substrate; and

identifying defects in the insulating layer based on the library.

2. (Currently Amended) The method as defined by claim 1, wherein the thickness data is data for a particular region or the whole of a the wafer.

3. (Currently Amended) The method as defined by claim 1, wherein the ~~standard~~ data for the optical image is data for a particular region or the whole of a the wafer.

4. (Currently Amended) The method as defined by claim 1, wherein the optical image is stored as an in analog or digital image.

5. (Currently Amended) The method as defined by claim 1, wherein creating the library is such that each optical image for a the region represented by each thickness data is determined and a continuous image library for each thickness is constructed.

6. (Previously Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of optical images, the method comprising:

measuring a thickness of the insulating layer at a plurality of locations on the substrate;

collecting an optical image of the insulating layer for each of said plurality of locations on the substrate, and storing the optical image transformed into analog data or digital data;

correlating the optical image to the measured thickness of the insulating layer for each of said plurality of locations;

creating a library by matching the optical image to the thickness of the insulating layer for each of said plurality of locations; and

identifying defects in the insulating layer based on the library.

7. (Cancelled).